

WHAT IS CLAIMED IS:

1. An electronic settlement system for settling a transaction through a communication network, comprising:

a settlement apparatus which performs the settlement of the transaction;

a billing terminal connecting to said settlement apparatus via the communication network; and

a paying terminal, connecting to said settlement apparatus via the communication network,

wherein said settlement apparatus performs the settlement of a transaction by synchronizing a communication to said billing terminal with a communication to said paying terminal when said settlement apparatus sets up a transaction identifying number which identifies the transaction and when said paying terminal transmits the same transaction identifying number to said settlement apparatus.

2. An electronic settlement system as claimed in claim 1, wherein said billing terminal connects to said settlement apparatus via a commercial telephone line or a private line, and said paying terminal connects to said settlement apparatus via a radiotelephone communication.

3. A settlement apparatus performing a settlement of a transaction, which communicates with a billing terminal performing billing of the transaction and with a paying terminal performing paying of the transaction, the apparatus comprising:

a first communication unit connecting to the billing terminal via a first communication network;

a second communication unit connecting to the paying terminal via a second communication network; and

a processing unit for processing the settlement of the transaction, said processing unit synchronizing a communication

to the billing terminal with a communication to the paying terminal when said processing unit sets up a transaction identifying number to identify the transaction, and when the paying terminal transmits to said settlement apparatus the same transaction identifying number.

4. A settlement apparatus as claimed in claim 3, wherein said first communication unit connects to the billing terminal via at least one of a commercial telephone line and a private line, and said second communication unit connects to the paying terminal via radiotelephone communication.

5. A settlement apparatus as claimed in claim 4, wherein:

said first communication unit receives a purchase amount of the transaction from the billing terminal;

said second communication unit transmits said purchase amount to the paying terminal so that the paying terminal confirms said purchase amount, and receives a final purchase confirmation signal;

said processing unit performs a settlement processing after said second communication unit receives the final purchase confirmation signal from the paying terminal;

said first communication unit transmits a settlement completion notification, which notifies completion of the settlement processing performed by said processing unit to the billing terminal; and

said second communication unit transmits to the paying terminal a receipt which notifies the receiving of said purchase amount of the settlement processed by said processing unit.

6. A settlement apparatus as claimed in claim 5, further comprising a billing terminal database storing information about the billing terminal,

wherein said first communication unit receives from the

billing terminal an identifying number to identify the billing terminal, and

said processing unit retrieves information about the billing terminal from said billing terminal database and confirms a registration of the billing terminal, based on the identifying number.

7. A settlement apparatus as claimed in claim 6, wherein said second communication unit transmits to the paying terminal the information about the billing terminal, for the paying terminal to confirm the billing terminal, retrieved from said billing terminal database.

8. A settlement apparatus as claimed in claim 7, further comprising a paying terminal database which stores information about the paying terminal,

wherein said second communication unit detects a calling telephone number of the paying terminal, and

said processing unit retrieves information about a user of the paying terminal from said paying terminal database based on the calling telephone number, and said processing unit inquires about at least one of a registration status of the user, a payment history of the user, and available amount of the user.

9. A settlement apparatus as claimed in claim 8, wherein said processing unit retrieves at least a part of attribute information of the user of the paying terminal from said paying terminal database, and said first communication unit transmits to the billing terminal at least a part of the attribute information of the user of the paying terminal.

10. A settlement apparatus as claimed in claim 11, wherein when said second communication unit receives a message which demands a purchase history of the user of the paying terminal, said

processing unit retrieves said purchase history of the user from said paying terminal database, and said second communication unit transmits the purchase history to the paying terminal.

11. A settlement apparatus as claimed in claim 8,

wherein said first communication unit transmits to the billing terminal a transaction identifying number in order to identify the transaction, and

said processing unit synchronizes a communication to the billing terminal with a communication to the paying terminal, and said first communication unit transmits to the billing terminal a synchronization confirmation signal which indicates establishment of synchronization, when the billing terminal notifies said transaction identifying number to at least one of the paying terminal and a user of the paying terminal, and when the paying terminal transmits to said settlement apparatus the same transaction identifying number.

12. A settlement apparatus as claimed in claim 11, wherein said processing unit retrieves authentication information of the user of the paying terminal from said paying terminal database, and

said first communication unit, for the billing terminal to authenticate the user, transmits said authentication information of the user to the billing terminal.

13. A settlement apparatus as claimed in claim 12, wherein said authentication information of the user is a facial portrait of the user.

14. A settlement apparatus as claimed in claim 13, wherein:

said first communication unit receives a signal requesting password authentication of the user from the billing terminal;

said processing unit retrieves information about the password of the user of the paying terminal from said paying terminal

database;

said second communication unit transmits an order of a password request to the paying terminal and receives a password inputted by the paying terminal from the paying terminal;

said processing unit, receiving the password from the paying terminal, inquires about the information about the password retrieved from said paying terminal database; and

said first communication unit authenticates the user by transmitting a password inquiry result performed by said processing unit to the billing terminal.

15. A settlement apparatus as claimed in claim 11, wherein:

said processing unit retrieves authentication information registered by the user of the paying terminal from said paying terminal database;

said second communication unit transmits an order to inquire about said authentication information to the paying terminal and receives an answer of the paying terminal inputting corresponding to the order from the paying terminal; and

said processing unit authenticates the user by verifying the answer received from the paying terminal against said authentication information retrieved from said paying terminal database.

16. A settlement apparatus as claimed in claim 15, wherein:

said authentication information registered by the user of the paying terminal, which said processing unit retrieves from said paying terminal database, is at least one of a password of the user, a voice data spoken from the user, a face image data of the user, an image data of an iris or retina of the user, and an image data of finger print of the user, and

said answer of said processing unit receiving from the paying terminal in order to inquire with said authentication information is at least one of character data, voice data, and image data.

17. A settlement apparatus as claimed in claim 8, further comprising a billing terminal database which stores information about the billing terminal, wherein:

said processing unit retrieves information about the billing terminal from said billing terminal database so that the billing terminal confirms the paying terminal,

said second communication unit transmits to the paying terminal the information about the billing terminal in addition to said transaction identifying number for identifying the transaction, and

when the paying terminal confirms the information about the billing terminal and transmits said transaction identifying number to said settlement apparatus, said processing unit synchronizes the communication to the billing terminal with the communication to the paying terminal, and said first communication unit transmits a synchronization confirmation signal which indicates establishment of synchronization with the billing terminal.

18. A settlement apparatus as claimed in claim 17, wherein said first communication unit receives from the billing terminal an item ordering information which is for a user of the paying terminal to input an order of an item,

said second communication unit transmits the item ordering information to the paying terminal, and

when the paying terminal transmits to said settlement apparatus an order of an item, inputted by the user of the paying terminal based on the item ordering information, said first communication unit transmits the order of an item to the billing terminal.

19. A settlement apparatus as claimed in claim 18, further comprising a voice database which stores user voice data of the paying terminal, wherein:

said second communication unit transmits a message prompting the paying terminal to input a user voice and receives the user voice from the paying terminal, and

said processing unit, by inquiring about the voice of the user using said voice database, authenticates the user.

20. A settlement apparatus as claimed in claim 19, wherein said settlement apparatus authenticates the user, by said processing unit retrieving authentication information registered by the user of the paying terminal from said paying terminal database,

said second communication unit transmits an instruction which inquires said authentication information to the paying terminal, and the paying terminal receives an answer inputted corresponding to the instruction from the paying terminal, and

said processing unit inquires the answer received from the paying terminal to said authentication information retrieved from said paying terminal database.

21. A settlement apparatus as claimed in claim 20, wherein said authentication information, said processing unit retrieving from said paying terminal database and registered by the user of the paying terminal is at least one of a password of the user, voice data spoken by the user, facial portrait image data of the user, at least one of iris and retina data of the user, and finger print image data of the user; and the answer of said processing unit receiving from the paying terminal in order to inquire with said authentication information is at least one of character data, voice data, and image data.

22. A billing terminal performing billing of a transaction against a paying terminal paying for the transaction, by communicating with a settlement apparatus settling the transaction, comprising:

a communication unit which connects to the settlement apparatus via a communication network, said communication unit

transmitting an identification number to identify the billing terminal to the settlement apparatus and receiving from the settlement apparatus a synchronization confirmation signal indicating establishment of synchronization with the paying terminal; and

a processing unit which performs billing of the transaction.

23. A billing terminal as claimed in claim 22, wherein said communication unit connects to the settlement apparatus via at least one of a commercial telephone line, a private line, and radiotelephone communication.

24. A billing terminal as claimed in claim 23, wherein said communication unit receives from the settlement apparatus at least a part of attribute information of the user of the paying terminal.

25. A billing terminal as claimed in claim 23, further comprising a display unit displaying a status of the transaction performed by said processing unit;

wherein said communication unit receives a transaction identifying number to identify the transaction from the settlement apparatus,

said display unit, by indicating said transaction identifying number, notifies said transaction identifying number to at least one of the paying terminal and a user of the paying terminal, and

when said communication unit receives from the settlement apparatus a synchronization confirmation signal indicating the establishment of synchronization with the paying terminal, said display unit indicates that said communication unit receives the synchronization confirmation signal.

26. A billing apparatus as claimed in claim 25, further comprising a short range communication unit, said short range

communication unit transmitting said transaction identifying number to the paying terminal by communicating with the paying terminal via at least one of an optical communication and a wireless communication.

27. A billing terminal as claimed in claim 25, wherein said communication unit transmits to the settlement apparatus a purchase amount of the transaction and receives from the settlement apparatus a settlement completion notification to notify a completion of the settlement processing.

28. A billing terminal as claimed in claim 27, wherein said communication unit receives from the settlement apparatus authentication information of the user of the paying terminal, and

said processing unit authenticates the user based on said authentication information received from the settlement apparatus.

29. A billing terminal as claimed in claim 28, wherein said authentication information of the user is a facial portrait of the user.

30. A billing terminal as claimed in claim 29, wherein said communication unit transmits to the settlement apparatus a signal to demand password authentication of the user, and receives from the settlement apparatus a result of the password authentication of the user when said processing unit is not able to authenticate the user using the facial portrait of the user.

31. A billing terminal as claimed in claim 27, further comprising:

an item choice unit by which the user of the paying terminal is prompted to choose a purchasing item, said item choice unit

prompting the user to choose an item when said communication unit receives from the settlement apparatus said synchronization confirmation signal indicating the establishment of synchronization with the paying terminal; and

an item sending unit through which a purchased item to be sent out,

wherein said communication unit transmits to the settlement apparatus a price of the item chosen by the user as said purchase amount of the transaction, and when said communication unit receives the settlement completion notification from the settlement apparatus, said item sending unit sends out the item chosen by the user based on the settlement completion notification.

32. A billing terminal as claimed in claim 23, said communication unit transmits to the settlement apparatus order information to prompt the user of the paying terminal to input an order of purchasing an item and receives from the settlement apparatus an order inputted by the user of the paying terminal based on the order information,

said communication unit transmits to the settlement apparatus said purchase amount calculated by said communication unit and receives from the settlement apparatus a settlement completion notification to notify a completion of the settlement processing.

33. A billing terminal for performing billing of a transaction, communicating with a settlement apparatus performing settlement of the transaction against a paying terminal performing a payment of the transaction, and communicating with a computer terminal indicating a status of the transaction to provide information about the transaction, the billing terminal comprising:

a first communication unit connecting to the settlement apparatus via a communication network, said first communication unit transmitting an identifying number identifying said billing terminal to the settlement apparatus and receiving a transaction

identifying number identifying the transaction from the settlement apparatus, and said first communication unit receiving from the settlement apparatus a synchronization confirmation signal indicating the establishment of synchronization with the paying terminal;

a second communication unit connecting to the computer terminal via the communication network, said second communication unit transmitting to the computer terminal for a user of the paying terminal said transaction identifying number in order to notify said transaction identifying number; and

a processing unit performing billing of the transaction.

34. A billing terminal as claimed in claim 33, wherein said second communication unit receives from the computer terminal a purchase amount of the transaction, and

when said first communication unit transmits said purchase amount to the settlement apparatus and receives from the settlement apparatus a settlement completion notification which notifies a completion of the settlement processing.

35. A billing terminal as claimed in claim 34, wherein said second communication unit, for the computer terminal to indicate a state of the transaction, transmits to the computer terminal at least one of the synchronization confirmation signal and the settlement completion notification for said first communication unit receiving from the settlement apparatus.

36. An authentication apparatus for communicating with a first terminal and with a second terminal demanding to authenticate a user of the first terminal, and performing the authentication demanded by the second terminal, the apparatus comprising:

a user database storing authentication information registered by a user of the first terminal;

a first communication unit connecting to the first terminal

via a first communication network, said first communication unit transmits to the first terminal an order to inquire said authentication information and receives from the first terminal an answer inputted by the first terminal corresponding to the order;

a second communication unit connecting to the second terminal via a second communication network, said second communication unit receives from the second terminal an authentication demand to authenticate the user of the first terminal; and

a processing unit performing the authentication, said processing unit sets up an identifying number to identify the authentication demanded by the second terminal, and when the first terminal transmits the same identifying number as said identifying number to said authentication apparatus, synchronizes a communication to the first terminal with a communication to the second terminal, retrieves from said user database authentication information to authenticate the user of the first terminal, and by inquiring the answer received from the first terminal with said authentication information retrieved from said user database, authenticates the user of the first terminal; wherein

said second communication unit, by transmitting to the second terminal an authentication result judged by said processing unit, authenticates the user of the first terminal.

37. An authentication apparatus as claimed in claim 36, wherein said authentication information, said processing unit retrieving from said user database, registered by the user of the first terminal is at least one of a password of the user, voice data spoken by the user, facial portrait image data of the user, at least one of iris and retina data of the user, and finger print image data of the user; and the answer of said processing unit receiving from the first terminal in order to inquire with said authentication information is at least one of character data, voice data, and image data.

38. A recording medium which stores a program for a computer, communicating with a billing terminal performing billing of a transaction and with a paying terminal performing payment of the transaction, and performing a settlement of transaction, said program comprising:

a first communication module which operates the computer to communicate to the billing terminal via a commercial telephone line or a private line;

a second communication module which operates the computer to communicate to the paying terminal via a radiotelephone communication; and

a processing module which performs the settlement of transaction, said processing module setting a transaction identifying number which identifies the transaction and said processing module synchronizing a communication to the billing terminal with a communication to the paying terminal when the paying terminal transmits a transaction identifying number the same transaction identifying number to the settlement apparatus.

39. A program for a computer, communicating with a billing terminal performing billing of a transaction and with a paying terminal performing paying of the transaction, and performing a settlement of transaction, said program comprising:

a first communication module which operates the computer to communicate to the billing terminal via a commercial telephone line or a private line;

a second communication module which operates the computer to communicate to the paying terminal via a radio telephone communication; and

a processing module which performs the settlement of transaction, said processing module setting a transaction identifying number which identifies the transaction and said processing module synchronizing a communication to the billing terminal with a communication to the paying terminal when the paying

terminal transmits a transaction identifying number the same transaction identifying number to the settlement apparatus.